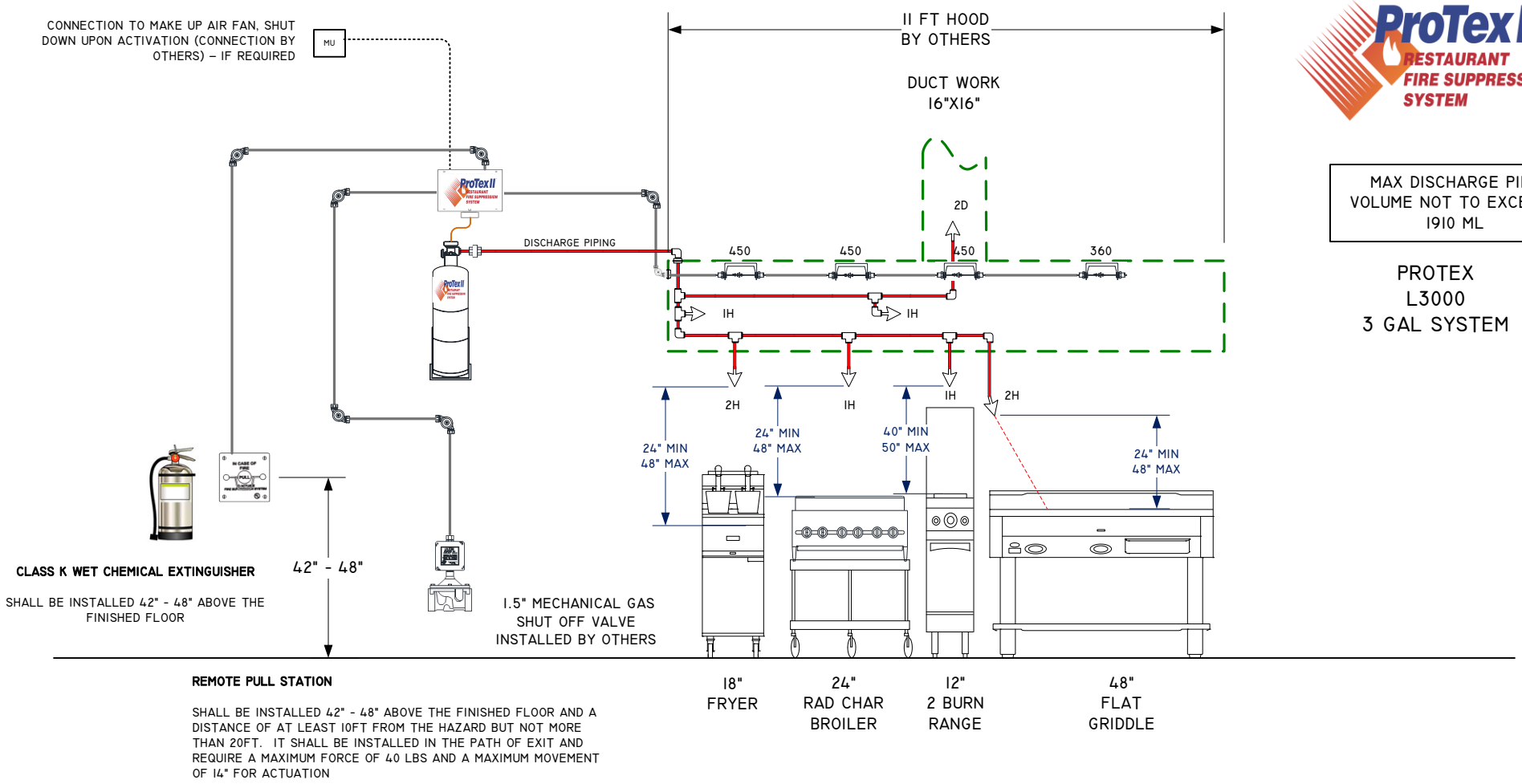



ProTex II RESTAURANT FIRE SUPPRESSION SYSTEM

MAX DISCHARGE PIPE VOLUME NOT TO EXCEED : 1910 ML

PROTEX
L3000
3 GAL SYSTEM

| NOZZLE TABLE | | | | | | |
|---|---|---|---|---|---|---|
| HAZARD | QTY | NOZZLE | PTS | TOTAL | MIN Nozzle Height | MAX Nozzle Height |
| 18" FRYER | 1 | 2H | 2 | 2 | 24 | 48 |
| 24" RAD CHAR BROILER | 1 | 1H | 1 | 1 | 24 | 48 |
| 12" RANGE | 1 | 1H | 1 | 1 | 40 | 50 |
| 48" FLAT GRIDDLE | 1 | 2H | 2 | 2 | 24 | 48 |
| DUCT | 1 | 2D | 2 | 2 | 100" PERIMETER MAX | |
| PLENUM | 2 | 1H | 1 | 2 | 10 FT LENGTH MAX | |
| | | | | | | |
| | | | TOTAL | 10 | | |

THIS SYSTEM USES 10 of 10 FLOW POINTS

PRE-ENGINEERED SYSTEM SHOP DRAWING ONLY – NOT TO SCALE

CITY OF BREMERTON

FIRE EQUIPMENT CONTRACTOR
345 6TH STREET, SUITE 600 BREMERTON, WA 98337
360-473-5290

SOME RESTAURANT
123 MAIN STREET
BREMERTON, WA 98337

| SIZE | FSCM NO | DWG | REV |
|---|---|---|---|
| | | KITCHEN FIRE SYSTEM | |

SCALE N/A SHEET 1 OF 6

EXAMPLE DRAWINGS PROVIDED BY: http://www.firesystemdrawings.com

## GENERAL PIPING REQUIREMENTS

1. Split piping and straight piping are both allowed on L1600, L3000 and L4600 systems.
2. L6000 systems must use split piping only, with no nozzle located before the split, and with a maximum of 14 flow points per side. 1/2 in. minimum piping must be used up to the first split.
3. Maximum volume for 1/4 in. pipe between a nozzle and the preceding tee is 410 mls.
4. Maximum flow numbers for 1/4 in. pipe is 6.
5. Maximum number of elbows between a nozzle and the preceding tee is 5.
6. Maximum of 25 elbows are allowed in the total piping system.
7. Maximum difference in elevation between the tank outlet and any nozzle is 10 ft.
8. No traps are allowed in the piping network.
9. Pipe lengths are measured from center to center of fittings.
10. The internal equivalent length volume of fittings does not have to be considered as part of the total pipe volume.
11. When utilizing different size pipe in the system, the largest size must start first and the additional pipe must decrease as it approaches the nozzle.
12. Elbow(s) or swivel adaptors located at the nozzles do not have to be counted in the 25 elbow maximum requirement.
13 Reducing bushings are allowed when reducing to a smaller pipe size.
14. Additional piping requirements when protecting a range, wok, or a fryer:

- L1600 - Minimum of 239 ml and one (1) flow numbers required in total system. Of that minimum, 180 ml and one (1) flow numbers must be utilized at or before the range, wok, or fryer
- L3000 - Minimum of 300 ml and four (4) flow numbers required in total system. Of that minimum, 239 ml and two (2) flow numbers must be utilized at or before the range, wok, or fryer.
- L4600 - Minimum of 660 ml and ten (10) flow numbers required in total system. Of that minimum, 180 ml and two (2) flow numbers must be utilized at or before the range, wok, or fryer.
- L6000 - Minimum of 960 ml and fourteen (14) flow numbers required in total system. Of that minimum, 120 ml and 2 flow numbers must be utilized at or before the range, wok, or fryer.

## TANK CHART

| Tank Size | Maximum Flow Numbers | Maximum Pipe Volume (milliliters) | Maximum Volume Allowed Between First Nozzle & Last Nozzle (milliliters) |
|---|---|---|---|
| 1.6 Gallon L1600 | 5 | 1500 | 600 |
| 3.0 Gallon L3000 | 10 | 1910 | 1125 |
| 4.6 Gallon L4600 | 14 | 3400 | 3000 |
| 4.6 Gallon L4600 | 15 | 2600 | 2000 |
| 6.0 Gallon L6000 | 19 | 4215 | 1688/side |
| 6.0 Gallon L6000 | 20 | 3465 | 1313/side |

### Minimum Pipe Volumes for a Fryer, Range, and Wok

| Cylinder Size | Entire System | At or before appliance |
|---|---|---|
| L1600 | 239 ml–1 Flow Pt | 180 ml–1 Flow Pt |
| L3000 | 300 ml–4 Flow Pts | 239 ml–2 Flow Pts |
| L4600 | 660 ml–10 Flow Pts | 180 ml–2 Flow Pts |
| L6000 | 960 ml–14 Flow Pts | 120 ml–2 Flow Pts |

## PIPING LIMITATIONS

Once the nozzle placement and quantity of tanks has been determined, it is necessary to determine the piping configurations between the tank and the nozzles. This section contains the guidelines and limitations for designing the distribution piping so that the wet chemical agent will discharge from the nozzles at a proper flow rate. These limitations must also be referred to when selecting the mounting location for the tanks.

The maximum pipe lengths are based on internal pipe volume. Each size tank is allowed a minimum and maximum total volume of piping, calculated in milliliters.

There is no need to distinguish between what portion of the piping is supply line and what portion is branch line. Only the total volume of the complete piping network has to be considered.

### Volume Chart

1/4 in. pipe = 20.5 mls./ft.

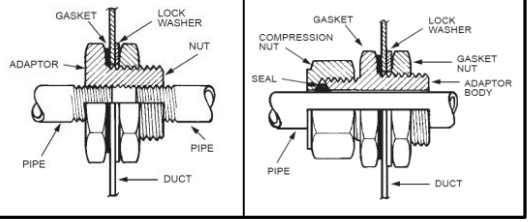
3/8 in. pipe = 37.5 mls./ft.

1/2 in. pipe = 59.8 mls./ft.

3/4 in. pipe = 105.0 mls./ft.

For more Pipe Volume data, see page 52

ALL PENETRATIONS TO THE HOOD SHALL BE SEALED WITH AN APPROVED QUICK SEAL DEVICE




ProTex II RESTAURANT FIRE SUPPRESSION SYSTEM

CITY OF BREMERTON

FIRE EQUIPMENT CONTRACTOR
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360-473-5290

SOME RESTAURANT
123 MAIN STREET
BREMERTON, WA 98337

| SIZE | FSCM NO | DWG | REV |
|---|---|---|---|
| | | KITCHEN FIRE SYSTEM | |

SCALE N/A SHEET 2 OF 6

EXAMPLE DRAWINGS PROVIDED BY: http://www.firesystemdrawings.com

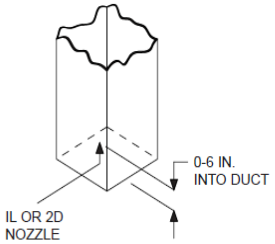
## Duct Protection

It is not required that the fan be shut down or the exhaust duct be dampered for the system to operate properly.

- All duct protection is UL listed without limitation of maximum duct length (unlimited length). This includes all varieties of ductworks both horizontal and vertical including ducts that run at angles to the horizontal and ducts with directional bends.

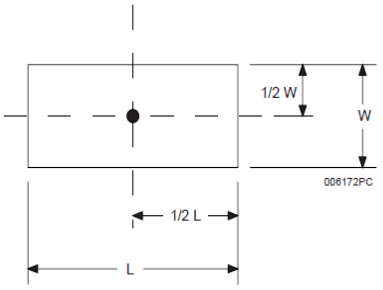
Duct protection requires that a nozzle be positioned to discharge into the duct. Two nozzles are available for duct protection.

The Model IL Nozzle, Part No. 551026, is a one (1) flow nozzle. A single IL nozzle is capable of protecting square or rectangular ducts with a maximum perimeter of 50 in. (127 cm), with the diagonal being a maximum of 18 3/4 in. (47.6 cm). It can also protect a round duct with a maximum diameter of 16 in. (40.6 cm).



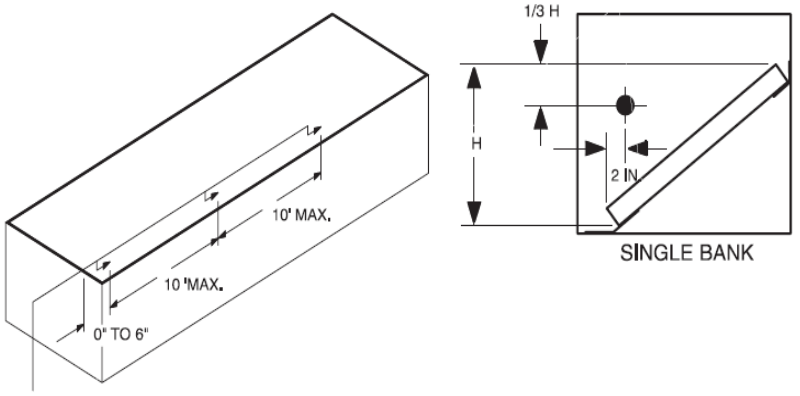

The Model 2D duct nozzle, Part No. 551038, is a two (2) flow nozzle. A single 2D nozzle is capable of protecting square or rectangular ducts with a maximum perimeter of 100 in. (254 cm), with the diagonal being a maximum of 37 3/8 in. (94.9 cm). It can also protect a round duct with a maximum diameter of 31 7/8 in. (81 cm).

When two (2) 2D duct nozzles are used to protect a single duct, the cross sectional area of the duct must be divided into two equal symmetrical areas. The nozzle must then be installed on the centerline of the area it protects and aimed directly into the duct opening.




PLENUM PROTECTION

The NL1H nozzle is a one (1) flow nozzle used for plenum protection. A single NL1H nozzle can protect a plenum (with single or V-bank filters) 10 ft. long by 4 ft. wide. Dividing the length into sections equal to or less than 10 ft. in length and positioning a nozzle at the start of each section can be done to protect longer plenums.




EXAMPLE DRAWINGS PROVIDED BY: http://www.firesystemdrawings.com

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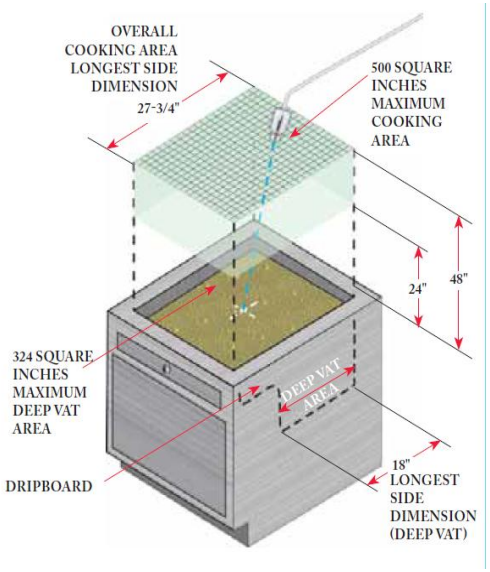
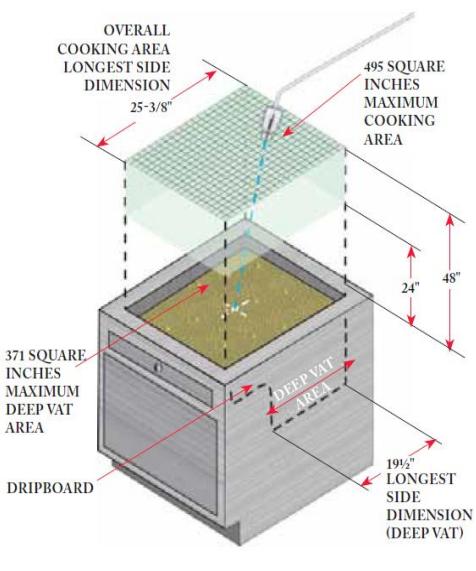
| SIZE | FSCM NO | DWG | REV |
|---|---|---|---|
| | | KITCHEN FIRE SYSTEM | |

SCALE N/A SHEET 3 OF 6

# Fryers with Drip Board (High Mount Nozzle)

| | |
|---|---|
| Compulsory Nozzle | NL2H |
| Flow Points Per Nozzle | 2 (Two) |
| Number of Nozzles Required | 1 (One) |
| Maximum Area of Protection | |
| | *Condition 1* |
| Deep Vat Cooking Area (excludes drip board) | 324 square inches with a maximum longest side dimension of 18 inches. |
| Overall Cooking Area (includes drip board) | 500 square inches with a maximum longest side dimension of 27-3/4 inches. |
| | *Condition 2* |
| Deep Vat Cooking Area (excludes drip board) | 371 square inches with a maximum longest side dimension of 19-1/2 inches. |
| Overall Cooking Area (includes drip board) | 495 square inches with a maximum longest side dimension of 25-3/8 inches. |
| Nozzle Location | Anywhere over the cooking surface. |
| Nozzle Height | 24 inches to 48 inches above the cooking surface. |
| Nozzle Aiming | Aimed at the center of the cooking surface. |

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| SIZE | FSCM NO | DWG | REV |
|---|---|---|---|
| | | KITCHEN FIRE SYSTEM | |

SCALE N/A SHEET 4 OF 6

## Large Griddle (High Mount Nozzle)

| | |
|---|---|
| Compulsory Nozzle | NL2H |
| Flow Points Per Nozzle | 2 (Two) |
| Number of Nozzles Required | 1 (One) |
| Maximum Area of Protection | 1440 square inches with a longest side dimension of 48 inches |
| Nozzle Location | Above any corner of the cooking surface. |
| Nozzle Height | 24 inches to 48 inches above the cooking surface. |
| Nozzle Aiming | At a point 12 inches in and 12 inches over from the corner below the nozzle. |
| Graphic Representation | See figure 3-18 |

*Nozzle must be located directly above any corner of the cooking surface and aimed at the intersecting point 12 inches from each side of the corner below the nozzle.*

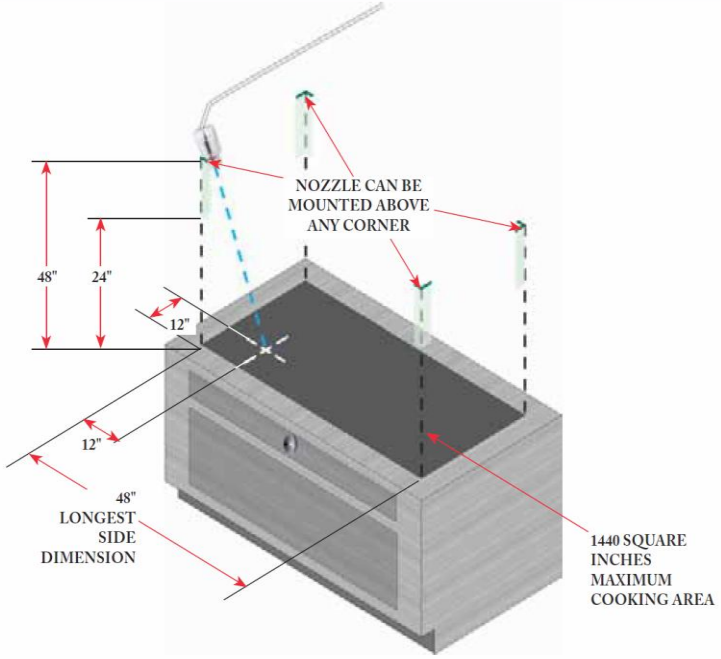


Figure 3-18

EXAMPLE DRAWINGS PROVIDED BY: http://www.firesystemdrawings.com

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| SIZE | FSCM NO | DWG | REV |
|---|---|---|---|
| | | KITCHEN FIRE SYSTEM | |

SCALE N/A SHEET 5 OF 6

## Small Gas Radiant Char-Broiler (High Mount Nozzle)

| | |
|---|---|
| Compulsory Nozzle | NL1H |
| Flow Points Per Nozzle | 1 (One) |
| Number of Nozzles Required | 1 (One) |
| Maximum Area of Protection | 624 square inches with a longest side dimension of 26 inches. |
| Nozzle Location | Anywhere over the cooking surface. |
| Nozzle Height | 24 inches to 48 inches above the cooking surface. |
| Nozzle Aiming | Aimed at the center of the broiler. |
| Graphic Representation | See figure 3-20 |

*Nozzle must be located anywhere within the shaded area and aimed at the center of the cooking surface.*

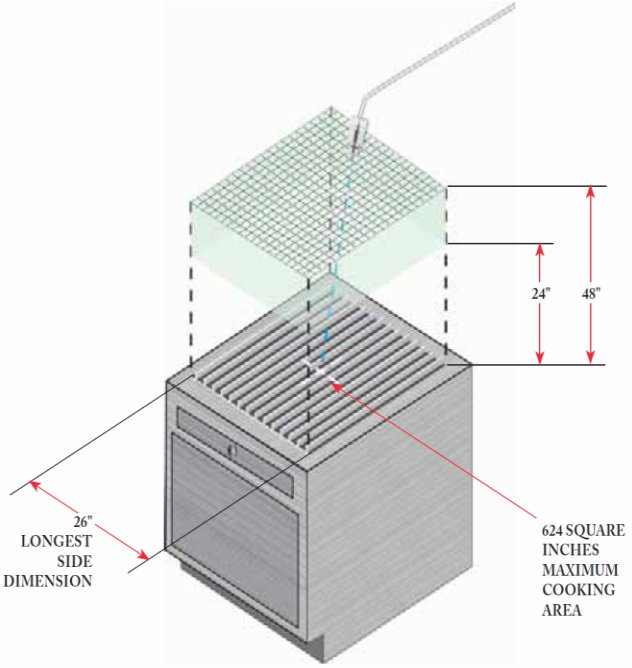



Figure 3-20

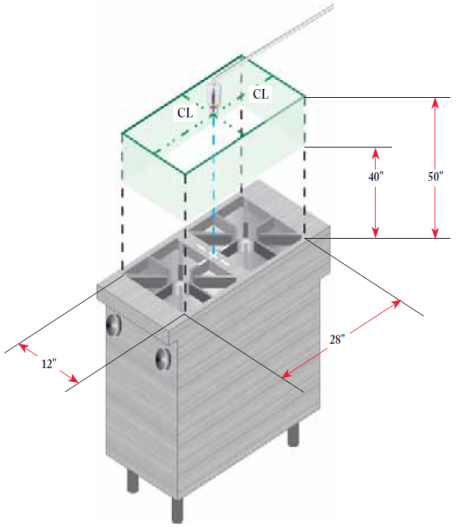
## Two Burner Range (High Mount Nozzle)

**Note**

*The range cannot be under a backshelf when using high-mount protection.*

| | |
|---|---|
| Compulsory Nozzle | NL1H |
| Flow Points Per Nozzle | 1 (One) |
| Number of Nozzles Required | 1 (One) |
| Maximum Area of Protection | 12 inches x 28 inches |
| Nozzle Location | Center of the cooking surface only. |
| Nozzle Height | 40 inches to 50 inches above the cooking surface. |
| Nozzle Aiming | Directly down only. |
| Graphic Representation | See figure 3-10 |

*Nozzle must be located (heightwise) anywhere within the shaded area, and centered above the cooking surface.*

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| SIZE | FSCM NO | DWG | REV |
|---|---|---|---|
| | | KITCHEN FIRE SYSTEM | |

| SCALE | N/A | | SHEET | 6 OF 6 |
|---|---|---|---|---|